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MONEY AND CREDIT PAPER IN THE MODERN  
MARKET.

WE all know that the system of bank credits and bank money, which was introduced into the great commercial centers of the early modern world, has now attained a quite marvelous development. In point of safety, economy, and convenience, the bank money is so evidently superior to the old currency which it replaced, that it has won its way into all parts of the world, until every civilized land has its banks of deposit and discount, and its system of credit currency. Indeed, in the most advanced regions scarcely a neighborhood is without the new medium of exchange; and everywhere checks and drafts are widely and freely used. In our own country, and to a less extent elsewhere, there has grown up, in the last half century, a secondary institution for the perfection of this credit money; and at the clearing houses enormous amounts of credit paper are each year exchanged and balanced by the payment of only the slightest sums of money. The credit paper thus introduced into trade has become one of the most widely admired institutions of the industrial world—arouses admiration even in the mind of the prosaic business man who is most familiar with its workings. Like the railway, it is said to be the only agency in its field truly deserving the approval of an advanced community; and, like the railway, it is not rarely thought to have made its slower competitors quite antiquated.

It would certainly be worth while to inquire to what extent this credit currency has displaced money from the modern market, even if the answer had only a curious interest, had no practical bearings. But, just at present, the answer has the highest practical interest; for it bears directly upon the much-debated money question.

All thinkers and most writers and speakers who call for more currency imply in their discourse that they believe in something like the quantity theory as to the value of money. They complain about the robbery of debtors for the benefit of creditors, and about the chronic depression of industrial enterprise, and both evils they ascribe to a scarcity of money, or the consequent fall of prices. Some sort of an addition to the circulation, they agree, is the proper remedy. Some insist that an international agreement for the equally free coinage and use of silver and gold is the only truly efficient means; some would be content with free coinage at the American mints; and, of course, there are many other classes who urge the adoption of many other schemes more or less mechanical or fanciful. But it is everywhere assumed that more money would bring higher prices, or, at any rate, would check the present fall; and, indeed, unless it can be shown that there is such a connection between the amount of money and the range of prices, all these schemes for inflation are illogical and would prove futile. For inflationists of whatever sort, good or bad, something like the quantity theory is vitally important; without it they cannot justify their positions.

Yet to this venerable theory all present validity is not infrequently denied. The fall of prices, it is said, may or may not be an evil, and may be due to this cause or to that; but, in any case, it cannot rationally be ascribed to a scarcity of money. There is money enough, as may be seen by several tokens; and, what is much more to the point, the amount of money in a community no longer exercises a direct or controlling influence upon the height of prices. The truth is as follows: (1) In modern industrial societies money has become quite unimportant as a medium of exchange, since by far the greater proportion of the

purchases and sales are made by means of checks and drafts, and without the intervention of actual money. (2) This being so, general price will depend rather upon the abundance or scarcity of the more important medium of exchange, and will itself determine how much money will be used.

To some such form most of the recent arguments against the real quantity theory may be reduced.<sup>1</sup> It may, perhaps, be possible, upon the basis of the first of the two propositions just given, to develop an argument of at least apparent strength and yet not close along the line indicated under the second head; but the first proposition seems an essential part of any hopeful attack upon the classical theory. If this be so, the practical importance of determining the relative parts played in the modern market by money and credit paper becomes at once evident. What influence money exerts upon the height of general prices must be known before monetary policy can be directed at all wisely; and in order to know the nature of this influence, it is necessary to know the relative importance of money and the substitutes for money. In particular, it is necessary to know how far credit paper has driven cash from the markets of the world. It is only with this last question that the present paper has to do. As to the classical quantity theory no criticism will be passed, one way or the other.

It is not at all uncommon to meet with statements in which the proportion of what may be called credit exchanges is put as high as 90 per cent.;<sup>2</sup> and in the very latest book on money which I have seen it is printed, "It is estimated that 95 per cent. of the volume of business is transacted by means of bank checks."<sup>3</sup> When the writer or speaker is in the mood, he will add to such statements the other one that, great as this proportion of credit

<sup>1</sup> There are, of course, not a few arguments set forth in one place and another which could by no possibility be forced into the forms just given; but these are, for the most part, if not without exception, based upon a misunderstanding as to what the quantity theory really is.—See A. DE VITI DE MARCO, *Moneta e prezzi*, especially ch. 1.

<sup>2</sup> SIR T. H. FARRER, BART., *What do we pay with?* p. 22, 23; *Cheap Money* (Century Company), p. 12; *Finance Report, 1892*, p. 333.

<sup>3</sup> M. L. MUHLEMAN, *Monetary Systems of the World*, p. 163.

paper now is, it is still increasing. It is the purpose of this paper to examine the evidence upon which such assertions as these have been or may be rested.

In support of the more general statements evidence has been adduced from several sources; but when the percentage is definitely given, it is at once evident upon what basis of fact the assertion rests. Indeed, it is sometimes expressly said that the proof is found in the experience of banks and bankers; it is maintained that direct experiment, through examination of the receipts of banks, shows that but very little cash is used.

In America<sup>1</sup> four or five experiments of this sort have been made. In 1871, at the request of James A. Garfield, chairman of the House Committee on Banking and Currency, the Comptroller of the Currency requested fifty-two selected national banks to analyze and report their receipts for six days. In a total of \$157,000,000 there was found \$137,630,000 in money substitutes, checks, bills, and drafts, and only \$19,370,000 in money—12.3 per cent. money, 87.7 per cent. substitutes. In 1881, Comptroller Knox sent to all the national banks a request for a similar analysis and report for the two days, June 30 and September 17. Returns for June 30 came from 1966 out of 2106 banks; and for September 17 from all the 2132 existing banks. The result is given in the following table:

ITEMS	June 30. 1966 Banks		September 17. 2132 Banks	
	Amount	Per Cent.	Amount	Per Cent.
Checks, drafts and bills .....	\$261,271,665	91.77	\$271,036,525	91.85
Clearing-house certificates <sup>2</sup> .....	9,582,500	3.36	6,592,337	2.24
Paper money .....	11,554,747	4.06	13,026,570	4.36
Gold coin .....	1,864,105	.65	4,078,044	1.38
Silver coin .....	440,997	.16	500,301	.17
Total .....	\$284,714,017	100.	\$295,233,779	100.

<sup>1</sup> In all the following discussion reference is, as a rule, made only to the data for the United States; but, so far as I know, the testimony of Europe is essentially the same.

<sup>2</sup> By some strange mistake, the Comptroller counts these clearing-house certificates as money substitutes. The term clearing-house certificate has been applied to several

In 1890, reports from pretty nearly all the banks gave the following results :

ITEMS	July 1. 3364 Banks		September 17. 3474 Banks	
	Amount	Per Cent.	Amount	Per Cent.
Checks, drafts, etc .....	\$189,408,708	44.90	\$168,803,756	51.58
Exchanges for clearing house.....	194,290,203	46.06	126,596,873	38.68
Miscellaneous .....	2,138,022	.50	135,562	.04
		91.46		90.30
Gold coin.....	3,726,605	.89	3,702,772	1.13
Silver coin .....	1,352,647	.32	1,399,991	.43
Gold treasury certificates .....	6,427,973	1.52	6,159,305	1.88
Silver treasury certificates.....	6,442,638	1.53	5,908,714	1.81
Legal tender notes.....	7,881,786	1.87	7,665,666	2.34
National bank notes .....	5,244,967	1.25	4,371,778	1.34
Legal tender certificates.....	520,000	.12	105,000	.03
Clearing-house certificates.....	4,391,177	1.04	2,428,834	.74
Total.....	\$421,824,726	100.	\$327,278,251	100.

In 1892 reports came for September 15 from 3473 out of 3579 banks, with the following results :

ITEMS	Amount	Per Cent.	ITEMS	Amount	Per Cent.
Checks, drafts, etc..	\$154,959,059	46.79	Silver treasury certificates .....	\$6,537,015	1.97
Exchanges for clearing house .....	141,873,266	42.83	Legal tender notes.	8,531,514	2.58
Miscellaneous.....	586,367	.18	Treasury notes .....	2,675,269	.81
		89.80	National bank notes	3,454,483	1.04
Gold coin .....	2,907,017	.88	Legal tender certificates.....	2,210,000	.67
Silver coin.....	1,372,054	.41	Clearing-house certificates .....	2,691,829	.81
Gold treasury certificates .....	3,407,340	1.03	Total .....	\$331,205,213	100.

varieties of paper; but only the clearing-house loan certificates, issued by the clearing-house banks in times of monetary stringency and against collateral securities, are in any true sense money substitutes. These have been issued, I believe, but five times, are used in payment of balances at the clearing houses, and are regularly called in as soon as may be after the emergency which occasioned the issue. They are clearly not what is meant by the term clearing-house certificates in this and later Finance Reports.

Of other clearing-house certificates there must be made at least three classes, but none are money substitutes. (1) Until 1888 the Bank of America, the depository of the New York Clearing House, issued certificates against deposits of gold coin of the

From all this what is most important for the present discussion may be presented in one table of comparative percentages:

ITEMS	1871	1881		1890		1892
Gold .....	.....	.65	1.38	.89	1.13	.88
Silver .....	.....	.16	.17	.32	.43	.41
Paper .....	.....	4.06	4.36	6.29	7.40	8.10
Clearing-house certificates .....	.....	3.36	2.24	1.04	.74	.81
Total money .....	12.3	8.23	8.15	8.54	9.70	10.20
Checks, drafts, etc.....	.....	.....	.....	44.90	51.58	46.79
Exchanges for clearing house.....	.....	.....	.....	46.06	38.68	42.83
Miscellaneous .....	.....	.....	.....	.50	.04	.18
Total substitutes .....	87.7	91.77	91.85	91.46	90.30	89.80

This is quite all the evidence of this sort that there is for America. What does it show? First I shall throw out of account the data for 1871. The observations of that year were of so narrow range, extending to only fifty-two banks, that they are of little value to the statistician. Moreover, there is no exact infor-

United States. These certificates were of two denominations, \$5000 and \$10,000, were payable to the order of the depositing bank, and could be used only through the clearing house at New York. Being issued only on the deposit of an equivalent in gold coin of the United States, they did not at all increase the volume of either money or credit. In 1888 this issue was discontinued, because the Treasury Department consented to emit similar certificates. (2) The United States Treasury has also issued gold certificates under authority of laws of March 3, 1863, and July 12, 1882. Under the law of 1863 the certificates were issued against deposits of either coin or bullion, and were payable only to order; they were in denominations of \$20, \$50, \$500, \$1000, \$5000, and \$10,000, and were put out from November 13, 1865, till December 1, 1878, when, in order to facilitate the resumption of specie payments, the issue was stopped. Under the law of 1882, certificates were issued only against coin, in denominations from \$20 to \$10,000, and payable to bearer. In 1888, as just noted, the Secretary of the Treasury authorized a special series of \$5000 and \$10,000 certificates, payable to order. These gold certificates of the highest denominations are very frequently called clearing-house certificates, and are, probably, what is meant in the Comptroller's reports. (3) By law of June 8, 1872, the United States Treasury was authorized to issue to national banks, in return for legal tender notes, certificates of deposit in denominations of \$5000 and \$10,000. These certificates are now issued in only the one denomination, \$10,000, and are with some propriety called clearing-house certificates, since they are designed to facilitate the settlement of balances between banks; but they are not money substitutes, for the notes deposited are kept as a special fund for the redemption of the certificates.

mation as to the methods of the experiment. It will, of course, be noted that, so far as the evidence of 1871 goes, it shows a higher proportion of cash receipts than is found in any later year.

But, if attention be confined to the more careful experiments of 1881, 1890, and 1892, there are some very interesting conclusions to be drawn, as well as some which may not safely be drawn. First of all as to the absolute percentages. For the national banks as a whole, the receipts for the five days averaged 91.036 per cent. credit paper, of one sort and another, and 8.964 per cent. cash. And upon this evidence rest the statements that above 90 per cent. of the business of the country is done without the intervention of money, and that 92 per cent. of the exchanges are effected by credit. But whatever the figures given above do show, they certainly are not warrant for any such assertions. They may, possibly, without evident error, be taken as an indication of the proportions of cash and credit in the business done either at the banks or among those who deposit at the banks—without evident error, perhaps, but still not without error. For although the reports do, probably, indicate with sufficient exactness the proportions of credit paper and cash in the receipts of national banks, they do not thus become a perfectly reliable measure of the relative parts which cash and credit play in the business of even these banks. Of the credit paper reported some little part is, of course, presented for cashing; and it is quite incorrect to count as a credit transaction an exchange of a check for cash. It is unfair to count that such a check dispenses with the use of money. Money passes to effect the exchange for which the check was given—passes just as really as if the check did not intervene at all.

But the Comptrollers' reports are taken again as data from which to infer the proportions of cash and credit in transactions, not at the banks, but among the business men who deposit at the banks. Yet such an inference is also quite unsafe. It rests on the assumption that the two media of exchange bear the same quantitative relations in the receipts of these depositors from

their customers and in the deposits afterward made at the banks. But, while the checks deposited by a business man are approximately all the checks received by him since his last deposit, it is by no means so certain that the cash deposited will be all that has been paid in to him during the same time. Whatever cash he has had occasion to use in the interval, will be largely drawn from the cash paid in during the same period. Nobody knows how much weight should be given to these considerations; but that they must be taken into account there can be no doubt. It is, therefore, certain that the proportions of cash and credit transactions, neither at the banks nor among the banks' depositors, are accurately shown by the figures of the Comptrollers' reports. The error is not great, is indeed probably quite small; but it is an error.

It is, however, not worth while to delay longer with these figures. The specific question just now is as to the relative magnitudes of the cash and the credit transactions, not of any one or two industrial classes, but of the country as a whole. It is exactly at the national banks and among their depositors that one ought to look for the highest proportion of credit instruments. It would require but a moment of careful thought to make it clear that in no other considerable field of industry would so small a proportion of cash be found; and to assume that the same proportions hold for the country at large is a most palpable error. Such an assumption was, indeed, not expressly made by the Comptrollers of the Currency in 1881 and in 1890; but it was quickly made by those who used the reports then presented, and in 1892 it appears in the boldest form in the *Finance Report* (pp. 332, 333). It would be just as correct a proceeding to compute the volume of water in a lake by multiplying the surface area into the greatest depth. That the error, the exaggeration, would be great is perfectly evident; just how great it would be nobody would like to say. The inquiry of the Comptroller of the Currency in 1894 makes it appear that those retail dealers in household staples who deposit at national banks, deposit about 54 per cent. credit paper of one sort or another, and about 46 per cent. cash.

The proportion of cash in the receipts of these dealers must, in accordance with the principle drawn out in the preceding paragraph, be placed somewhat higher; and it therefore appears that in these important fields business is done about equally with cash and with credit paper. This is a great drop from 90 per cent. or 92 per cent.; yet there are many other important industrial classes among whom the check is much more rarely seen. There are very many who, for one reason or another, have no banking connections, and so use checks very rarely indeed, if at all. It is not well, in this connection, to lay down any positive proposition in regard to the relative importance of cash and credit in the business transactions of America. But it must be clear that, in the Comptrollers' reports at least, there is no evidence that the proportion of credit transactions is 90 per cent. or anything near that figure.

Again, the predominating influence of credit instruments is not infrequently inferred from evidence of a quite different kind. The bank deposits or credits of our country are well known to be an enormous amount. In 1891 the total was \$4,270,338,375, nearly three times as much as the money of every kind in the land outside of the treasury; and this vast sum, it is natural to suppose, is that against which checks may be drawn at any time. But the amount of bank credits is not a direct or reliable means of measuring the use of checks. It is not the checks that may or might be drawn that replace money as a medium of exchange; it is only the checks actually drawn that can do that. And it is not safe to assume that all the deposits are in constant use as currency. It will, perhaps, surprise most students to learn that the daily check operations of the banks of America, far from equaling the bank deposits, are but little greater than the cash reserves. In other words, the present system of deposit and checking permits the money thus withdrawn from active circulation to be used in buying and selling only a little oftener than once a day. So, if we take the national banks together, we find that on July 18, 1890, they held \$293,062,607 in cash, while on July 1 preceding they received \$385,836,933 in money substitutes.

The trust companies and all the banks, national, state, and private, held, on July 18, 1890, \$478,316,694 in cash, while their daily receipts in credit paper must be put, as we shall soon see, at not far from \$550,000,000. Statistics of bank deposits are, therefore, quite unreliable as a measure of the extent of checking. Moreover, as a matter of fact, a great part of the cited deposits is not available as bank money. Of the great sum named above the greatest item of all was the \$1,654,826,142 of savings bank deposits; and this must, of course, be at once stricken from the amount of bank money. There remains, it is true, a great total of genuine banking deposits, which means, no doubt, a great total of checks. But it would be rash to conclude that in business checks predominate over cash. It would be rash to assert that one stick is longer than another, until we know something about the length of both.

Again, it is not unusual to read statements of the gigantic amounts of the operations of the clearing houses. When one thus finds mention of check transactions in terms of billions, or scores of billions, one is likely to conclude that the scant billion of money which makes up our active circulation is of comparatively little weight. If the sixty odd banks of the one clearing house in New York City exchange with one another about \$35,000,000,000 of checks and drafts a year, one hardly has courage to pretend that, after all, money may still be not entirely antiquated. The would-be adherent of the quantity theory dreads to learn what the total check operations of the whole country may be. Yet here again the careful student will be wary of making any comparison between two quantities of which only one is known.

These inquiries as to the character of the receipts of the national banks, as to the amounts of bank deposits and as to the operations of clearing houses, are interesting enough in themselves; but they can give but little help in the determination of the *relative* amounts of the sales for cash and for credit instruments. There are, however, methods of attacking this problem, which promise somewhat better results. It is necessary to determine, as accurately as may be, the amounts of *both* the

credit and the cash transactions for the whole country, and then to compare the two quantities.

In estimating the probable amount of the credit transactions it is possible to follow at least two independent methods. It is possible, in the first place, to compute from the amount of credit paper that does pass through the clearing houses to the amount that is probably received by clearing-house banks and all others. For the year ending October 1, 1891, the clearings at New York were \$34,053,698,770. Experiment made June 30 and September 17, 1881, gave 78.64 per cent. and 87.75 per cent. respectively as the proportion of checks drawn on New York national banks which go through the clearing house. For July 1 and September 17, 1890, the figures were 72 per cent. and 65 per cent., and on September 15, 1892, the figure was 69 per cent. If, now, the average of these more recent dates, or 69 per cent., be taken as the presumptive general average for all the banks of the New York Clearing House, it would appear that the amount of checks and other credit paper received by all these banks in 1891 was about \$49,353,186,000. It is impossible to get figures for the ratio of clearings to checks and drafts in all the other cities; but, naturally, the ratio diminishes with the number of banks in a clearing-house association. For Chicago the clearings for 1891 were \$4,338,693,167, and the percentages for July 1, 1890, September 17, 1890, and September 15, 1892, as described above, 57 per cent., 48 per cent. and 45 per cent., or on the average 50 per cent.<sup>1</sup> On the same assumption that this proportion is representative for all the banks of the Chicago Clearing House, these banks must have received, in 1891, \$8,677,386,334 in checks and drafts. By the same sort of computation, the amount for St. Louis is \$2,498,511,596. Similar estimates for some of the other large cities make it seem probable that the proper ratio of clear-

<sup>1</sup> That this figure is approximately correct is shown by an independent computation. The average receipts of the Chicago national banks for the two days, July 1 and September 17, 1890, were \$23,511,237, of which 95 per cent. was in credit paper. If this average be taken as a fair index of the business at Chicago, the receipts of the Chicago national banks for 1890 would be in credit paper \$6,818,476,300. Yet the clearings for that same year were \$3,907,046,008.

ings to total receipts of checks and drafts is for all the associations outside of New York not far from 40 per cent.<sup>1</sup> The total clearings of the cities to which this figure applies were, in 1891, \$23,127,648,514, and the total receipts in credit paper, therefore, not far from \$57,819,121,285. On these assumptions, the total receipts of this sort for all the clearing-house banks would be \$107,172,307,908; and it remains to add the proper amount for the other banks.

The clearing-house banks, about seven hundred in number, certainly did much more business than all the rest, to the number of between 7000 and 7500. Naturally, nearly all the important banks have direct or indirect connection with a clearing house, and the transactions of the smaller and the country banks fall off in a surprising degree. In 1892, 97.08 per cent. of all the domestic exchange drawn by all the national banks of the country was drawn on banks in reserve cities, and no less than 60.77 per cent. on New York alone. And of all this domestic exchange 40 per cent. was drawn by the 329 banks in the reserve cities. But a more direct indication of the predominant importance of the banks in the centers is found in those reports to the Comptroller of the Currency to which reference was made some pages back. The forty-seven banks of New York City reported, on July 1 and September 17, 1890, 39.34 per cent. and 36.8 per cent. respectively of all the receipts of the 3400 banks, and if to New York be added the other reserve cities, it appears that in July, with only 330 banks out of 3364, they together reported 78.18 per cent. of the receipts, and in September, with 333 out of 3474 banks, 73.67 per cent. of the receipts. In 1892 the forty-eight New York banks reported 39.55 per cent. and the reserve cities together 74.72 per cent. of all the receipts. If then about 330 national banks in the chief cities do regularly about three-fourths of all the business of the 3700 banks in the system, it is a conservative estimate to assign to the 700

<sup>1</sup> Mr. Dudley P. Bailey says that outside of New York the proportion of clearings to "commercial transactions" is much less than one-half.—*The Clearing-House System*, p. 35.

clearing-house banks the same part in the business of the whole country. If this be done, we have, as the total of checks and drafts received by all the banks, about \$142,000,000,000.

It is possible to attack the same problem in a second way. In the Comptrollers' reports, already so often mentioned, the national banks are stated to have received credit paper to the amount of \$261,271,665 on June 30, 1881; \$271,036,525 on September 17, 1881; \$385,836,933 on July 1, 1890; \$295,536,191 on September 17, 1890; and about \$297,000,000 on September 15, 1892. The average for 1890, or \$340,686,562, may be taken as a fair index of the daily receipts of the national banks, and this would give, in a year of 305 days, \$103,909,401,410. To this great sum must be added the proper amount for the state and private banks and the loan and trust companies; for their transactions are not included in the reports to the Comptroller. In 1890 the deposits of the national banks amounted to \$1,594,193,245, and those of the trust companies and state and private banks to \$987,232,743. Now it appears from the computations just made that at the national banks the amount of credit paper annually received is about sixty-five times as great as the bank deposits, and, on the assumption that deposits are everywhere checked against as freely as at the national banks, there should be about \$64,367,574,000 put down for the credit paper received at the other institutions. But it is quite probable that the deposits are not used as briskly at the non-national banks. In the opinion of Professor Dunbar<sup>1</sup> this is quite certainly the case with the loan and trust companies, whose deposits were, in 1890, \$336,000,000 of the \$987,000,000 now under consideration. The national banks are estimated by the Comptroller of the Currency to have drawn, in 1891, \$12,782,212,495 of domestic exchange, while all the other banking institutions drew \$6,743,157,040. If the same proportions hold for all credit operations, the non-national banks should be set down for \$55,067,000,000 instead of \$64,368,000,000. This would give, as the grand total of credit paper received at all the banks of America in 1891,

<sup>1</sup> *Quarterly Journal of Economics*, vol. i. p. 408.

\$158,976,000,000, as against \$142,000,000,000 by the first method. There is thus substantial agreement between the results reached by two independent methods. For a difference of \$16,000,000,000, although no trifle in itself, is, when viewed as a matter of 10 per cent., not very alarming in so rough a computation as the present one. The average of the two amounts, then, or \$150,000,000,000, may, in default of more reliable information, be taken as a fair approximation to the total of the credit operations through all the banks of the country.

The probable amount of the banks' receipts in credit paper, then is, about \$150,000,000,000, but it does not follow that this is the true amount of what may be called the check transactions in the business of the country, the true measure of the extent to which money is displaced as a medium of exchange. This great sum must first be modified by a subtraction and by an addition. The amount of check receipts at the banks may be much greater in a year than the amount of the check exchanges in the business of the country. Suppose that a debtor draws a check upon his bank in Duluth, and sends it to a creditor in Watertown, Massachusetts. The check may be deposited in the Watertown bank, may thence pass to the Boston correspondent, thence to New York, thence to Chicago, thence to Duluth, and may thus appear five times as an item of the banks' receipts. Yet it may have effected only a single exchange of goods. In so far, then, as credit instruments experience such vicissitudes, it is necessary to reduce the total of credit paper in order to get the total of credit exchanges. But on the other hand it must be noted that a single check may very well serve more than once as a medium of exchange, and in so far as this occurs, the amount of the credit instruments passed may fall short of the amount of credit exchanges. In the present discussion, however, this consideration is probably of not very great weight. Our present grand total purports to give, not the amount of the checks and drafts drawn, but the amount of these sorts of paper received at the banks of the land in the course of a year, and if any paper is used more than once in payment, it is quite

likely to be counted more than once at the banks. It is only when a check is given to a creditor who, instead of putting it in at a bank, endorses it, and passes it on to another person, that it makes necessary any addition to our conjectural total, and although there are, of course, no inconsiderable number of cases in which just that does happen, the number cannot be vast relatively to the total number of checks drawn. I know of no broad experiment from which one may, even in the roughest way, compute the amounts of the addition and the subtraction here mentioned, but it may be a fair guess that the two would balance each other. If so, we continue with \$150,000,000,000 a year as the probable amount of credit transactions in the business of the country.

Now, \$150,000,000,000 is a snug sum—much the largest that one is likely to see mentioned in any sort of a practical discussion. At first glance it seems that if so vast an amount of buying and selling is done each year in America by means of credit paper, money itself must indeed have become of comparatively little importance as a medium of exchange. But here again is the danger of being overawed by the enormous magnitude of one of the two terms which are to be compared. We have as yet seen nothing as to the probable amount of cash purchases: it is even less easy to make estimates here than it was in the field just canvassed. We do know that at the time for which the previous statistics and estimates were given, there was in the active circulation of our country, that is, outside of the Treasury and outside of the banks, about an even billion dollars of money. It is, of course, impossible to determine how often this cash passes from man to man, and how much exchanging it thus accomplishes in the year. It can, however, be noted that if this money changes hands, on the average, three times a week, the amount of the cash transactions equals the great total which was assigned to credit paper. If the movement is more rapid, cash predominates; if less rapid, credit has the wider range. In order to justify the assertion that 90 per cent. of the business is done with credit instruments, it must be shown that the

\$1,000,000,000 of active circulation accomplishes less than \$17,-000,000,000 of exchanging a year, that is, that the cash outside of the Treasury and outside of the banks moves only once in three weeks. It must be remembered that it is a question, not as to all the money in the land, but as to only that part which is in the tills and the pockets of the people. That this cash does not, on the average, little and big, wait two full days before moving, ought to be true; for, although the small coins and bills may perhaps be less active than that, the larger pieces, which are far more influential in making the averages, will not often be permitted to lie thus in idleness. But it is needless to speculate further on this matter. The calculations of this paper are not presented as perfectly reliable and exact; there is possibility of error at many points. But they are submitted as evidence that the cash and credit exchange of our country, instead of standing as 1 to 10, stand in the ratio of something like 1 to 1.

Of the substantial accuracy of such an inference there is some confirmation in another investigation of the Comptroller of the Currency which was undertaken in the year 1894. So far, the inquiries as to the relative amounts of cash and credit paper had regarded all the deposits of all the national banks, and, naturally, these deposits came in a large measure from wholesale dealers, and even from speculators. Yet the transactions of these last can scarcely be said to constitute a demand for money, inasmuch as such business could not attain to anything like its present range without a pretty highly developed system of money substitutes—it will be done with credit paper, or not at all. And the proportion of credit transactions made up in this way is great. Of the credit paper received by the national banks of New York City June 30, 1881, and sent to the clearing house the next business day, it was computed that three-sevenths represented purely speculative transactions, purchases not made for permanent investment. The proportion is probably nowhere else so high as in New York, and it is probably not so high there at present; but it is evidently important to make some inquiry as to the ratio of cash and credit in strictly legitimate business. It was

with some such purpose that the Comptroller last year asked the national banks to report the character of the deposits which came from retail dealers in household supplies—such goods as have been shown to require about 67 per cent. of the total expenditures of all classes. From the returns it appears that 54 per cent. of these deposits was in checks and other forms of credit paper, and 46 per cent. in cash; and these figures no doubt reflect with something like accuracy the ratio of cash and credit paper in the business of the dealers mentioned. There are, of course, not a few possibilities of error in all such computations. Perhaps one of the most important may tend to raise unduly the reported proportion of credit paper; for the reported deposits, no doubt, include nearly or quite all the credit instruments received by the dealers since their last day of deposit, and no doubt do not include quite all the cash received in the same period. On the whole we will not be far astray, if we count that these retail dealers are paid about equally with cash and with credit paper. But beyond, or below, these retailers there are many numerous classes among whom credit paper must play a much less important part. No doubt, most of the important industries are conducted by those who have banking connections, but the great majority of the people are without such connections, and their great numerical predominance gives them much weight, probably enough to bring the quota of cash transactions for the whole country to about one-half.

So far the present study has had to do with only the absolute ratio of cash and credit exchanges. It will now be of some interest to note what change in this ratio time seems to be working. It is not unusual to find it implied, not very unusual to see it stated, that the proportion of credit exchanges is not only very great but increasingly great; and to many, perhaps, such a statement seems to need no formal proof. It seems as evidently true as that industrial methods in general are improving; it seems quite in harmony with what we know of the broad movement of society. It is known that in pretty nearly every department of industry, in manufacturing, transportation, and all the rest,

rapid progress obtains, and it is then, very naturally, inferred that similar progress must hold in the mechanism of exchange, and that such progress must consist in the wider and wider substitution of credit instruments for money. Yet there is no weighty evidence to support such beliefs. Not only so, but there is some very strong evidence to the contrary, and this from several independent sources.

The first source to which I shall refer is the reports of the Comptroller of the Currency which have already been so often cited. It makes no very great difference here whether the tables are taken as given in the Finance Reports or with the correction in regard to clearing-house certificates which would, in all strictness, be necessary. If the item of clearing-house certificates be transferred from the side of money substitutes to the side of money, the change in the proportion of credit paper would be less marked than it appears in the Finance Reports; but it would still be clearly traceable. Merely for the sake of convenience in following the Comptrollers' analyses, I shall here take their tables as they stand. For the important cities for which a comparison is possible, the changes in the proportion of credit instruments is indicated in the following table:

CITIES	June 30, 1881	Sept. 17, 1881	July 1, 1890	Sept. 17, 1890	Sept. 15, 1892
New York.....	98.70	98.80	96.04	95.64	92.36
Chicago.....	92.00	90.30	95.11	95.06	94.52
Boston.....	96.50	93.70	94.14	90.70	93.11
Philadelphia.....	96.00	96.40	96.19	93.48	93.92
Cincinnati.....	88.00	90.00	92.34	93.50	94.64
Baltimore.....	92.90	93.90	89.89	89.16	82.46
Pittsburgh.....	90.40	86.20	92.37	90.00	90.02
Albany.....	93.80	96.50	92.97	96.60	95.33
Washington.....	60.00	45.80	65.27	32.65	66.65
New Orleans.....	89.80	80.20	90.09	82.83	87.16
Louisville.....	92.80	83.40	93.55	92.68	91.86
Cleveland.....	94.00	95.10	93.08	94.74	92.79
Detroit.....	87.50	93.50	87.31	95.61	91.82
Milwaukee.....	88.30	94.90	83.25	87.50	90.93
St. Louis.....	82.30	81.50	89.77	89.59	87.83
San Francisco.....	91.80	77.40	85.61	91.20	83.39
Reserve cities, except New York..	94.38	92.35	93.68	92.27	92.74
Cities other than reserve.....	81.72	81.74	84.09	82.91	84.91
Whole land.....	95.13	94.09	92.50	91.04	90.61

It is to be noted that from 1881 to 1892 there is an unmistakable decrease in the proportion of credit paper received at all the banks together. The decrease is quite remarkable at New York, holds for three of the four cities which stand pre-eminent as financial centers, New York, Boston, Chicago, and Philadelphia, holds for the reserve cities as a whole, and is replaced by an increase in the small cities. In the East there seems to be a decrease, while the western cities show the opposite tendency. It is no part of my plan to explain here these movements, or even to show that they indicate a displacement of credit. My only point here is that, so far as this bit of observation goes, there seems to be evidence that exchanges are effected more and more by cash, less and less by credit instruments.

Very interesting evidence as to the effect of industrial progress in changing the character of the medium of exchange is also found in the last report of the Comptroller of the Currency. The report, it will be remembered, deals with certain branches of retail trade, and, therefore, naturally shows a smaller proportion of credit money: the interest just now attaches to the relative proportions in the advanced and in the more backward communities. The proportion of credit money for the whole country, without any allowance for an error concerning national bank notes, was 57.7 per cent. Yet there is no evidence that the figure increases with the social and industrial advancement of the community, but rather no inconsiderable evidence to the contrary. So the percentage does not increase with the size of the towns. The maximum is found, at 70.9 per cent., for the cities of from 100,000 to 200,000 inhabitants, while the next highest figure, 66.1 per cent., is for towns of from 10,000 to 25,000. The largest cities, above 500,000, fall below the average, or to 55.9 per cent., while the very smallest towns, grouped 1000 to 5000, are above the average, at 59.1 per cent. Again, there is no evidence that those states which we ordinarily regard as most highly placed in the industrial scale use a larger proportion of credit money; but, as before, the slight weight of evidence makes in the opposite direction. The highest figures

are Mississippi, 86.5 per cent.; New Mexico, 83.6 per cent.; Virginia, 74.8 per cent.; Montana, 72.7 per cent.; Colorado, 70.5 per cent.; Georgia, 70.2 per cent. The lowest percentages are South Dakota, 37.6; California, 41.5; Minnesota, 43.2; Wyoming, 43.6; Ohio, 45.2; Indiana, 45.3; Massachusetts and North Carolina, 49.5. Here is another point of view. Most people would, no doubt, consider as the most advanced region, in a financial way, the states on either side of New York City, say Massachusetts, Rhode Island, Connecticut, New York, New Jersey and Pennsylvania. Yet of these six states, only Rhode Island and New York stand above the average for the whole country, and the rest fall below the 57.7 per cent. as follows: Massachusetts, 49.5; Connecticut, 55.2; New Jersey, 51.0; Pennsylvania, 53.3. Those who would deny the financial headship to this eastern region, would probably assign it to the rich central West; but the three states which are the heart of this region, all fall below the average: Ohio, 45.2 per cent.; Indiana, 45.3 per cent.; Illinois, 55.2 per cent.

One more evidence that credit exchanges are not increasing in relative importance may be briefly cited. It appears from the statistics of pretty nearly every sort of production, consumption, transportation and communication that the exchanging of our land is increasing more rapidly than our population. The most reliable indications, those of transportation, give a quite remarkable per capita gain. In the twenty years, from 1870 to 1890, the population increased by 62 per cent., and it is scarcely possible to find a single industrial activity which developed so slowly. Notwithstanding the fall of prices, the true value of all the wealth of the country increased 112 per cent. If, in various sorts of agricultural production, the average for 1869-71 and for 1889-91 be taken, in order to eliminate the influence of chance fluctuations, the increase comes out as follows: corn, 91 per cent.; wheat, 107 per cent.; oats, 117 per cent.; cotton, 147 per cent. In certain other forms of production the gain of 1890 over 1870 was even greater: pig iron, 453 per cent.; railroad bars, 242 per cent.; petroleum, 938 per cent. The consumption of staples

shows much the same state of affairs: coffee, 112 per cent. (the same as general wealth); tea, 96 per cent.; wool, 81 per cent.; cotton, 135 per cent.; pig iron, 404 per cent. These figures for production and consumption are valuable indexes of the growth of business; but, as indexes of the growth of exchanging, they are less valuable than the corresponding figures for transportation and communication—less valuable because less direct. The growth of exchanging may be more safely inferred from the following percentages of increase in the activities mentioned: tonnage entered and cleared in the foreign trade, 187 per cent.; railway mileage operated, 215 per cent.; railway earnings (notwithstanding the oft-mentioned lowering of rates), 167 per cent.; postal revenues, 208 per cent. Other figures of the same general character might be added, but these are certainly enough to prove that in America exchanging, *i. e.*, the demand for a medium of exchange, has increased much more rapidly than has the population. Moreover, we must come to the same conclusion, if we discard statistics altogether, and observe that in nearly all its branches industry is more highly organized than it used to be. The amount of exchanging has, therefore, increased more rapidly than the population. Yet the most that can be made out for credit money is that it has about kept pace with population. The clearings at the New York Clearing House are well known to be from one-half to two-thirds of the total for the whole country; yet in that city the operations show almost no increase. Just a quarter-century back from the last reported year, in 1869, the clearings at New York were \$37,407,000,000; and in only four years since have they reached so high a mark. Of these four years, three were 1881, 1882 and 1883, and the maximum then reached has never since been approached. It is true that this surprising fact is in some slight measure to be explained by the partial transfer of national clearings from New York to other centers; but a rational reading of the reported clearings for the whole country will show a very moderate increase. And moderate though this increase appears, it is not altogether a real one, but is in part due to the recent multiplication of clearing houses.

It is certain that, as cities have of late years established formal clearing houses, and reported their clearings, the totals for the whole country must have been swelled by the entry of transactions which before were not counted, but must still have taken place. The reported figures for the whole country must, therefore, exaggerate the real increase; but, even if no account be taken of that fact, it appears that the bank clearings do not increase as rapidly as does the population of our country. That is, if reduced to the per capita measure, the bank clearings show, in their irregular course, rather a decrease than an increase.<sup>1</sup> It is, therefore, extremely probable that the bank clearings of the country have not increased as rapidly as has the amount of exchanging; and, if the clearings be accepted as a reliable indication of the checking, it appears by this third evidence that credit money is losing rather than gaining in relative importance.

It will be perfectly easy for a careful reader to see that not one of the computations or discussions of this paper results in proof: perhaps not all together do this. There is in nearly all parts a great deal of assumption of probable truth and a great deal of rough computation; and, consequently, the most that can be claimed for the conclusions is that they are probably not far from the truth. But that much may be claimed with safety. The harmonious testimony of facts brought from different sources and

Year	Circulation per capita	Total Clearings	Clearings per capita	Year	Circulation per capita	Total Clearings	Clearings per capita
1878	\$15.32	\$27,814,000,000	\$ 584	1887	\$22.45	\$51,147,000,000	\$872
1879	16.75	38,526,000,000	788	1888	22.88	49,541,000,000	826
1880	19.41	49,990,000,000	997	1889	22.52	56,175,000,000	917
1881	21.71	63,471,000,000	1237	1890	22.82	60,829,000,000	971
1882	22.37	60,878,000,000	1160	1891	23.41	56,947,000,000	890
1883	22.91	51,731,000,000	963	1892	24.44	62,109,000,000	950
1884	22.65	44,200,000,000	805	1893	23.87	54,309,000,000	811
1885	23.02	41,474,000,000	739	1894	.....	45,615,000,000	...
1886	21.82	49,294,000,000	859				

The figures for the circulation outside of the Treasury and for the population are from the *Statistical Abstract* for 1893; the figures for the total clearings are from MUHLEMAN, *Monetary Systems of the World*.

by different ways cannot be disregarded. The conclusions which may and must be drawn are these: the system of bank money has indeed had a wonderful growth, and the purchases and sales annually made with the credit currency are very great in amount; but money of the old sort is by no means out of date. It is quite impossible to determine with any exactness the ratio of cash to credit paper in the modern market. It is quite probable that the two media of exchange play about equal parts; but of that nobody should venture to speak with confidence. Of changes in the relative importance of money and money substitutes it is somewhat safer to affirm. That recent years are seeing the field of credit money slowly contracted is pretty well proved.

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